Air Emissions
Boiler Emissions - Natural Gas

Date: 0-00-00

Company Name:	**Test**
Facility Name:	**test**
Equipment Name:	**Admin E Boiler**

Enter Maximum Heat Rate, (Btu/hr or Btuh) **90000000**

Gas Consumption per Hour (cubic feet per hour) 90000

Calculated using a 1000 Btu/cu ft heating value for natural gas and 100% boiler load.

Enter Number Hours Operated per Year **400**

The calculated emissions will be :

Emission Factors listed below are for **Natural Gas Boilers . . . . . .**
Less Than 100 Million Btuh

b	c	d	
Pollutant	**Emission Factor**	**Emission Rate**	**Emissions**
	lbs/cu ft gas	lbs/hr c x cubic feet hour	tons/yr d x hours/2000
Particulate Material - PM_{10}	0.0000076	0.684	**0.137**
Sulfur Dioxide - SO2	0.0000006	0.054	**0.011**
Nitrogen Oxides - NO_x	0.0001	9.000	**1.800**
Volitile Organic Compounds - VOC	0.0000055	0.495	**0.099**
Carbon Monoxide - CO	0.000084	7.560	**1.512**

Note: This calculation chooses the correct set of emission factors, from the table below, based on the boiler heat rate. The correct emission factor will automatically be choosen to match the maximum heat rate input. Each boiler must have it's own calculation, do **not** total the heat rates for the site and use the one number for emission calculations.

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Instructions

These calculation sheets have been written using Microsoft Excel.

Step 1 Fill in the name and identifying information.
Enter the boiler heat output, in Btu/hour or Btuh, from the boiler name plate. Every boiler needs an emission calculaton sheet.

Step 2 Enter the hours the boiler will be operated.

Step 3 Once you have entered in all the values click anywhere on the sheet and the calculation will be done by the program. Remember the information is being used for permitting purposes, so be sure the numbers are right and realistic.

Step 4 If this is the only piece of equipment you are done with the calculations.
Save a copy by printing out the page.
You now need to determine what type of permit you need . .. . .

Step 5 If this is one of several emission points, download the Air Emission Summary page and enter the equipment name and emissions.

Emission Factors - Natural Gas Boilers	Less Than 100 Million Btuh (lb/cu ft gas)	Greater Than 100 Million Btuh (lb/cu ft gas)
Particulate Material - PM_{10}	0.0000076	0.0000076
Sulfur Dioxide - SO2	0.0000006	0.0000006
Nitrogen Oxides - NO_x	0.0001	0.00028
Volitile Organic Compounds - VOC	0.0000055	0.0000055
Carbon Monoxide - CO	0.000084	0.000084

Emission factors are from EPA AP 42, 1.4 Natural Gas Combustion, Emission Factors are for an uncontrolled boiler. Most newer boilers have smaller emission rates, if you have manufacturers emission rates you should use them. Please include the manufacturers literature as a reference for why you are using different factors. Emission factors used could become a permit condition, and the Division of Air Quality can ask for a test to confirm emissions.